

We Claim:

1. A method of treating a subject suffering from PCOS comprising the step of administering a compound selected from the group consisting of GLP-1, exendin, and agonists and analogs thereof, wherein the subject exhibits at least one symptom of PCOS, with the proviso that the analogs of exendin do not include the peptides of SEQ ID NOs: 7-13.

2. The method according to claim 1, wherein the symptom is selected from the group consisting of insulin resistance, hyperinsulinemia, type-2 diabetes, obesity, hypertension, hyperlipidemia, anovulation or irregular ovulation, infertility, hyperandrogenism, hirsutism, alopecia, acne, enlarged multifollicular ovaries, abnormal uterine bleeding, and spontaneous abortion.

3. The method according to claim 1, wherein the subject is a human.

4. The method according to claim 1, wherein GLP-1 is selected from the group consisting of GLP-1 (7-36)NH₂, GLP-4(7-37), GLP-1(9-36) and exendin-4.

5. The method according to claim 1, wherein the GLP-1, exendin, or agonists or analogs thereof is administered by an infusion pump or by subcutaneous injection of a slow release formulation.

6. The method according to claim 1 wherein the GLP-1, exendin, or agonists or analogs thereof is administered with an agent selected from the group consisting of an ovulation inducing drug, an anti-androgenic drug, an insulin-sensitizing agent and glucose.

7. The method according to claim 6, wherein the ovulation inducing drug is selected from the group consisting of clomiphene, follistim, and Gonal-F.

8. The method according to claim 6, wherein the anti-androgenic drug is selected from the group consisting of a birth control pill, spironolactone, flutamide, and finasteride.

9. The method according to claim 6, wherein the insulin-sensitizing agent is selected from the group consisting of metformin, D-Chiro-inositol, diazoxide, and PPAR inhibitors (e.g., troglitazone (Rezulin), rosiglitazone (Avandia), and pioglitazone (Actos)).

10. The method according to claim 6, wherein the glucose is administered intravenously.

11. The method according to claim 6, wherein the GLP-1, exendin, or agonists or analogs thereof and the agent are administered either sequentially or concurrently.

12. A method of reducing insulin resistance in a subject suffering from PCOS comprising the step of administering a compound selected from the group consisting of GLP-1, exendin, and agonists and analogs thereof, with the proviso that the analogs of exendin do not include the peptides of SEQ ID NOs: 7-13.

13. The method according to claim 12, wherein the subject is a human.

14. The method according to claim 12, wherein GLP-1 is selected from the group consisting of GLP-1 (7-36)NH₂, GLP-4(7-37), GLP-1(9-36) and exendin-4.

15. The method according to claim 12, wherein the GLP-1, exendin, or agonists or analogs thereof is administered by an infusion pump or by subcutaneous injection of a slow release formulation.

16. The method according to claim 12 wherein the GLP-1, exendin, or agonists or analogs thereof is administered with an agent selected from the group consisting of an ovulation inducing drug, an anti-androgenic drug, an insulin-sensitizing agent and glucose.

17. The method according to claim 16, wherein the ovulation inducing drug is selected from the group consisting of clomiphene, follistim, and Gonal-F.

18. The method according to claim 16, wherein the anti-androgenic drug is selected from the group consisting of a birth control pill, spironolactone, flutamide, and finasteride.

19. The method according to claim 16, wherein the insulin-sensitizing agent is selected from the group consisting of metformin, D-Chiro-inositol, diazoxide, and PPAR inhibitors (e.g., troglitazone (Rezulin), rosiglitazone (Avandia), and pioglitazone (Actos)).

20. The method according to claim 16, wherein the glucose is administered intravenously.

21. The method according to claim 16, wherein the GLP-1, exendin, or agonists or analogs thereof and the agent are administered either sequentially or concurrently.

22. A method of preventing the onset of type-2 diabetes in a subject suffering from PCOS comprising the step of administering a compound selected from the group consisting of GLP-1, exendin, and agonists and analogs thereof, with the proviso that the analogs of exendin do not include the peptides of SEQ ID NOs: 7-13.

23. The method according to claim 22, wherein the subject is a human.

24. The method according to claim 22, wherein GLP-1 is selected from the group consisting of GLP-1 (7-36)NH₂, GLP-4(7-37), GLP-1(9-36) and exendin-4.

25. The method according to claim 22, wherein the GLP-1, exendin, or agonists or analogs thereof is administered by an infusion pump or by subcutaneous injection of a slow release formulation.

26. The method according to claim 22 wherein the GLP-1, exendin, or agonists or analogs thereof is administered with an agent selected from the group consisting of an ovulation inducing drug, an anti-androgenic drug, an insulin-sensitizing agent and glucose.

27. The method according to claim 26, wherein the ovulation inducing drug is selected from the group consisting of clomiphene, follistim, and Gonal-F.

28. The method according to claim 26, wherein the anti-androgenic drug is selected from the group consisting of a birth control pill, spironolactone, flutamide, and finasteride.

29. The method according to claim 26, wherein the insulin-sensitizing agent is selected from the group consisting of metformin, D-Chiro-inositol, diazoxide, and PPAR inhibitors (e.g., troglitazone (Rezulin), rosiglitazone (Avandia), and pioglitazone (Actos)).

30. The method according to claim 26, wherein the glucose is administered intravenously.

31. The method according to claim 26, wherein the GLP-1, exendin, or agonists or analogs thereof and the agent are administered either sequentially or concurrently.

32. A method of restoring regular menses in a subject suffering from PCOS comprising the step of administering a compound selected from the group consisting of GLP-1, exendin, and agonists and analogs thereof, with the proviso that the analogs of exendin do not include the peptides of SEQ ID NOs: 7-13.

33. The method according to claim 32, wherein the subject is a human.

34. The method according to claim 1, wherein GLP-1 is selected from the group consisting of GLP-1 (7-36)NH₂, GLP-4(7-37), GLP-1(9-36) and exendin-4.

35. The method according to claim 32, wherein the GLP-1, exendin, or agonists or analogs thereof is administered by an infusion pump or by subcutaneous injection of a slow release formulation.

36. The method according to claim 32 wherein the GLP-1, exendin, or agonists or analogs thereof is administered with an agent selected from the group consisting of an ovulation inducing drug, an anti-androgenic drug, an insulin-sensitizing agent and glucose.

37. The method according to claim 36, wherein the ovulation inducing drug is selected from the group consisting of clomiphene, follistim, and Gonal-F.

38. The method according to claim 36, wherein the anti-androgenic drug is selected from the group consisting of a birth control pill, spironolactone, flutamide, and finasteride.

5 39. The method according to claim 36, wherein the insulin-sensitizing agent is selected from the group consisting of metformin, D-Chiro-inositol, diazoxide, and PPAR inhibitors (e.g., troglitazone (Rezulin), rosiglitazone (Avandia), and pioglitazone (Actos)).

40. The method according to claim 36, wherein the glucose is administered intravenously.

10 41. The method according to claim 36, wherein the GLP-1, exendin, or agonists or analogs thereof and the agent are administered either sequentially or concurrently.

42. A method of restoring regular ovulation in a subject suffering from PCOS comprising the step of administering a compound selected from the group consisting of GLP-1, exendin, and agonists and analogs thereof, with the proviso that the analogs of exendin do not
15 include the peptides of SEQ ID NOs: 7-13.

43. The method according to claim 42, wherein the subject is a human.

44. The method according to claim 42, wherein GLP-1 is selected from the group consisting of GLP-1 (7-36)NH₂, GLP-4(7-37), GLP-1(9-36) and exendin-4.

45. The method according to claim 42, wherein the GLP-1, exendin, or agonists or
20 analogs thereof is administered by an infusion pump or by subcutaneous injection of a slow release formulation.

46. The method according to claim 42 wherein the GLP-1, exendin, or agonists or analogs thereof is administered with an agent selected from the group consisting of an ovulation inducing drug, an anti-androgenic drug, an insulin-sensitizing agent and glucose.

25 47. The method according to claim 46, wherein the ovulation inducing drug is selected from the group consisting of clomiphene, follistim, and Gonal-F.

48. The method according to claim 46, wherein the anti-androgenic drug is selected from the group consisting of a birth control pill, spironolactone, flutamide, and finasteride.

49. The method according to claim 46, wherein the insulin-sensitizing agent is
30 selected from the group consisting of metformin, D-Chiro-inositol, diazoxide, and PPAR inhibitors (e.g., troglitazone (Rezulin), rosiglitazone (Avandia), and pioglitazone (Actos)).

50. The method according to claim 46, wherein the glucose is administered intravenously.

51. The method according to claim 46, wherein the GLP-1, exendin, or agonists or analogs thereof and the agent are administered either sequentially or concurrently.

5 52. A method of restoring fertility in a subject suffering from PCOS comprising the step of administering a compound selected from the group consisting of GLP-1, exendin, and agonists and analogs thereof, with the proviso that the analogs of exendin do not include the peptides of SEQ ID NOs: 7-13.

53. The method according to claim 52, wherein the subject is a human.

10 54. The method according to claim 52, wherein GLP-1 is selected from the group consisting of GLP-1 (7-36)NH₂, GLP-4(7-37), GLP-1(9-36) and exendin-4.

55. The method according to claim 52, wherein the GLP-1, exendin, or agonists or analogs thereof is administered by an infusion pump or by subcutaneous injection of a slow release formulation.

15 56. The method according to claim 52 wherein the GLP-1, exendin, or agonists or analogs thereof is administered with an agent selected from the group consisting of an ovulation inducing drug, an anti-androgenic drug, an insulin-sensitizing agent and glucose.

57. The method according to claim 56, wherein the ovulation inducing drug is selected from the group consisting of clomiphene, follistim, and Gonal-F.

20 58. The method according to claim 56, wherein the anti-androgenic drug is selected from the group consisting of a birth control pill, spironolactone, flutamide, and finasteride.

59. The method according to claim 56, wherein the insulin-sensitizing agent is selected from the group consisting of metformin, D-Chiro-inositol, diazoxide, and PPAR inhibitors (e.g., troglitazone (Rezulin), rosiglitazone (Avandia), and pioglitazone (Actos)).

25 60. The method according to claim 56, wherein the glucose is administered intravenously.

61. The method according to claim 56, wherein the GLP-1, exendin, or agonists or analogs thereof and the agent are administered either sequentially or concurrently.

30 62. A method for preventing spontaneous abortion in a subject suffering from PCOS comprising the step of administering a compound selected from the group consisting of GLP-1,

exendin, and agonists and analogs thereof, with the proviso that the analogs of exendin do not include the peptides of SEQ ID NOs: 7-13.

63. The method according to claim 62, wherein the subject is a human.

64. The method according to claim 62, wherein GLP-1 is selected from the group consisting of GLP-1 (7-36)NH₂, GLP-4(7-37), GLP-1(9-36) and exendin-4.

65. The method according to claim 62, wherein the GLP-1, exendin, or agonists or analogs thereof is administered by an infusion pump or by subcutaneous injection of a slow release formulation.

66. The method according to claim 62 wherein the GLP-1, exendin, or agonists or analogs thereof is administered with an agent selected from the group consisting of an ovulation inducing drug, an anti-androgenic drug, an insulin-sensitizing agent and glucose.

67. The method according to claim 66, wherein the ovulation inducing drug is selected from the group consisting of clomiphene, follistim, and Gonal-F.

68. The method according to claim 66, wherein the anti-androgenic drug is selected from the group consisting of a birth control pill, spironolactone, flutamide, and finasteride.

69. The method according to claim 66, wherein the insulin-sensitizing agent is selected from the group consisting of metformin, D-Chiro-inositol, diazoxide, and PPAR inhibitors (e.g., troglitazone (Rezulin), rosiglitazone (Avandia), and pioglitazone (Actos)).

70. The method according to claim 66, wherein the glucose is administered intravenously.

71. The method according to claim 66, wherein the GLP-1, exendin, or agonists or analogs thereof and the agent are administered either sequentially or concurrently.